

REMARKS

Reconsideration of the above-identified application, as amended, is respectfully requested.

In the Office Action of August 5, 2005, the Examiner rejected Claims 1-39 under 35 U.S.C. §103(a), as being allegedly unpatentable over Malagrino et al. (U.S. Patent No. 6,714,985) (hereinafter "Malagrino") in view of Schroder et al. (U.S. Patent No. 6,341,129) (hereinafter "Schroder").

Applicants respectfully disagree.

The present invention, as claimed in Claims 1, 13 and 25, is directed to a respective method, system and computer program for routing a datagram that has been fragmented into a plurality of fragments utilizing content-based routing information included in one or more fragments of the plurality of fragments. The method comprises steps of:

- (a) generating a context for the datagram associated with routing the plurality of fragments of the datagram and setting the context for the datagram to passive until content-based routing information included in the one or more fragments is received;
- (b) caching received fragments while the context is set passive;
- (c) determining a destination for routing the plurality of fragments when content-based routing information included in the one or more fragments is received and setting the context for the datagram to active; and
- (d) routing any cached fragments and subsequently received fragments of the datagram to the determined destination while the context is active without reassembling the plurality of fragments into the datagram.

In the Office Action, the Examiner alleges that Malagrino teaches each of the steps as set forth in Claim 1 of the present invention. However, as correctly indicated by the Examiner, the thrust of Malagrino is that even while relying upon a Content Addressable Memory and controller subsystem to process and store received packet fragments, Malagrino

explicitly teaches and requires packet reassembly at a switch (e.g., intermediate network node or router) prior to routing the packet to its destination. Thus, as a threshold issue, the system and method for routing a datagram that has been fragmented into a plurality of fragments according to the present invention as set forth in Claims 1, 13 and 25 are distinct on the basis that it utilizes content-based routing information included in one or more fragments of the plurality of fragments to route fragments to a determined destination without reassembling the plurality of fragments into the datagram.

Thus, the issue remains as to whether the Schroeder reference makes up for the deficiency of Malagrino. Respectfully, Applicants submit that the Examiner's reliance upon Schroeder is misplaced and the combination of Malagrino and Shroeder do not make a prima facie case of obviousness against independent Claims 1, 13, 25, and 37-39.

Shroeder is not combinable with Malagrino for the following reasons:

- 1) Shroeder is a TCP re-segmentation scheme and as a threshold matter- does not address or contemplate the processing of IP datagram fragments as in the context of Malagrino. Rather it is directed to a technique for changing the size of information packets having large data sizes en route to a receiver. However, Schroeder suggests that TCP re-segments are processable without IP reassembly only because Schroeder provides a mechanism that generates one or more TCP segments (whole IP datagrams) from an original packet -each capable of being independently routed as the segments include all of the routing information IP and TCP header information from the original packet.
- 2) This is all the more evident as suggested in the pseudocode depiction of the re-segmentation algorithm described in Schroeder at col. 4, line 18 where the algorithm is applied only if the IP datagram has "not already been fragmented" and in Schroder at col.

4, lines 31 where the algorithm copies “the original IP and TCP headers” to the new transmit buffer in which the new segment is formed.

- 3) Thus, in essence, Schroeder does not deal with IP fragments at all– and is antithetical to the processing performed in Malagrino which is oriented to processing IP fragments having only a portion of the header fields of the original IP packet in each IP fragment (Malagrino, col. 2, lines 44-50) using a hardware-based assembly engine. One looking to process IP fragments without reassembly at an intermediate node would not look to Schroeder for the solution as Schroeder does not deal with fragments in the sense as used in Malagrino and in the present invention, as it inherently avoids a packet reassembly solution.
- 4) In Schroeder, each TCP segment includes identical copies of the IP and TCP headers of the original packet, and, hence, all routing information self-contained therein which obviates the need for any reassembly at a switch node when communicating in layers 4-7 of the OSI protocol stack. As such, Schroeder is not combinable with Malagrino which contemplates processing (buffering and reassembling) all IP fragments having incomplete routing information at a switch node until all fragments are received (see Malagrino, col. 8, lines 47-55).
- 5) The present invention deals with IP fragments (communication of packets at the layers 3-7 of the OSI model) with only a sequentially “first” fragment having IP header and TCP header information while remaining fragmented packets do not have the TCP header information (see Figs. 3 and 4 of the present invention) and are not independently routable. This is contrasted with Figure 5 of Schroeder where an original packet having a large information payload (original segment 47 shown in Figure 5 of Schroeder) is segmented and each of the re-segmented packets (TCP segments 61, 63 and 65 shown in

Figure 5 of Schroeder) contains an IP Header and a re-segmented TCP Header and subsegment portions and are themselves complete IP datagrams- not “IP fragments” requiring reassembly) and independently routable.

- 6) Hence, in the present invention, without receipt of the sequentially first packet fragment, the content based context is set to passive (see page 19, lines 19-21 of the present specification) and the IP packet fragments are cached until such time as the sequentially first fragmented IP datagram has been received and content-based information required for routing has been stored in the maintained buffer context (PCCB) and set to active (see page 20, lines 16-20 of the present specification) which enables immediate forwarding of cached packet fragments subsequently received fragments without reassembly. The Examiner’s indication that Malagrino teaches this “passive/active” concept is respectfully misplaced as Malagrino must always determine that a whole packet is complete before forwarding it, i.e., must first cache all IP fragments notwithstanding whether all available routing information has been received or not (See Malagrino at col. 8, lines 16-18; lines 25-27; and, lines 48-55).
- 7) Thus, Schroeder contemplates receiving whole IP datagrams with complete routing information in each packet and provides a TCP re-segmentation technique to obviate the need to reassemble IP datagram packet fragments in the first instance as each TCP segment in and of itself is a complete IP datagram (see col. 3, lines 24-30) and not an IP datagram “fragment”. That is, a TCP subsegment is not an IP datagram fragment in the context of the present invention and Malagrino.
- 8) Schroeder is not addressing an IP packet fragment reassembly scheme, as it does not have to address this issue. Rather, it seeks an alternate solution that obviates the need for fragment reassembly in the first instance. Thus, one skilled in the art would not be

motivated to consult Schroeder as it inherently is not directed to an IP datagram fragment processing scheme in the same context as Malagrino and the present invention.

Thus, respectfully Claims 1, 13 and 25 are patentable over the combination of Malagrino and Schroeder as Malagrino deals with IP packet fragmentation while Schroeder is antithetical to IP datagram fragment processing and thus are not combinable. Having not made a prima facie case of obviousness, the Examiner is respectfully requested to withdraw the rejection of at least Claims 1, 13 and 25 under 35 U.S.C. §103(a) and withdraw the rejection of all claims dependent therefrom. For the same reasons as the foregoing, the Examiner is respectfully requested to withdraw the rejection of independent Claims 37-39 under 35 U.S.C. §103(a).

In view of the foregoing remarks herein, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance be issued. If the Examiner believes that a telephone conference with the Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned, Applicants' attorney, at the following telephone number: (516) 742-4343.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven Fischman", with a long horizontal line extending to the right.

Steven Fischman

Registration No.: 34,594

Scully, Scott, Murphy & Presser
400 Garden City Plaza, Suite 300
Garden City, New York 11530
(516) 742-4343

SF:gc